

Screening for Depression in Primary Care

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Overview

- Epidemiology of depression in primary care
- Which screening tool should be used?
- Implementing depression screening in primary care
- What developments are on the horizon?
- Conclusions

Epidemiology:

1. Population Prevalence

- NCS-R: DSM-IV dx (12 month prevalence)
 - 9.5% any mood disorder
 - 6.7% MDD
 - 19.5% mild
 - 50.1% moderate
 - 30.4% serious
 - 1.5% dysthymia
- European 6-country study (12 month prevalence)
 - MDD 3.9%
- European meta-analysis (27 studies) (12 month prevalence)
 - MDD 3.1-10.1%

Epidemiology:

2. Primary Care Prevalence

- Pre-DSM-III-R PC MDD prevalence: 4.8-8.6%
- WHO PPGHC (15 cities/14 countries) MDD (ICD10): 10.4% (2.6-29.5%)
- Backenstrass et al. (2006)
 - 4.6% MDD
 - 6.2% minor depression
 - 9.1% nonspecific depression sx

Primary Care:

The de facto MH System

- ECA MDD (12 months prior)
 - 45% any health service
 - 27.8% specialty mental health care
 - *25.3% general medical sector*
- NCS-R MDD (12 months prior)
 - 51.6% any health service
 - *27.2% general medical sector*
 - *12.8% classified as mild*
- 50-80% of all depression management in PC

Recognition of Depression: The Primary Care Irony

- General medical settings: primary venue for treating depression (and other mental disorders)
- <50% with MDD are diagnosed in PC
 - Magruder et al. VA sample of 819: 52% correct dx of depression (MDD, NOS, dysthymia)
 - WHO PPGHS: 54.2% (range 19.3%-74.0%) with depression correctly recognized as having psychological

Which Screening Tool?

1. Standard Screeners

<i>Tool</i>	<i>Scope</i>	<i># Items</i>	<i>Min.</i>	<i>Self</i>
BDI	Sx severity today	7, 13, or 21	2-5	yes
CES-D	Sx frequency past wk	10 or 20	2-5	yes
GDS	Sx endorsement past wk	15 or 30	2-5	
ID	Sx recently	15	2-5	
SDS	Sx frequency	20	2-5	ye

Which Screening Tool?

2. Short Screeners

<i>Tool</i>	<i>Scope</i>	<i># Items</i>	<i>Min.</i>	<i>Self</i>
HADS	Sx severity past wk	14	≤ 2	
MOS-D	Sx frequency past wk	8	< 2	yes
PHQ	Sx frequency past 2 wk	9	< 2	yes

Which Screening Tool?

3. Ultra-Short/Ultra-Brief Screeners

<i>Tool</i>	<i>Scope</i>	<i># Items</i>	<i>Min.</i>	<i>Self</i>
PRIME-MD (PHQ-2)	Sx past month	2	1-2	yes
SDDS-PC	Sx past month	5	1-2	

Two-stage Approaches

- Combine screening and diagnosis
 - Quick screen (“stem” questions)
 - Dx modules for screen+ patients
- SDDS-PC
- PRIME-MD

Screening for General Emotional Distress

<i>Tool</i>	<i>Scope</i>	<i># Items</i>	<i>Mi n.</i>	<i>Se lf</i>
WHO-5	Degree of well-being	5		
GHQ	General psychiatric distress; sx frequency past week	12, 28, or 30	2-10	ye s
HSCL	General distress; sx frequency past wk	13 or 25	2-5	

Screening for Multiple Disorders

- General screener – 1-2 items/disorder
- Anxiety & Depression Detector (ADD) (Means-Christensen et al., 2006): 5 questions
 - Panic d/o
 - PTSD
 - Social phobia
 - GAD
 - MDD

Severity Ratings

- Beyond case-finding
- Evaluate treatment response/effectiveness
- Helps with “watchful waiting” for at risk patients with subthreshold or minor depression
- Administer screeners repeatedly
 - Sx changes
- Examples
 - Zung SDS
 - PHQ-9

Implementing Screening in Primary Care

- Consider:
 - Screening instrument performance characteristics
 - Clinical context
 - Underlying non-psychiatric case-mix
 - Overall staffing patterns
 - Underling prevalence of depression
- With above parameters, can estimate resource use for various implementation strategies

1-Stage Screening Approach

5% Prevalence

80% Sensitivity 80% Specificity

Gold Standard			
	MDD +	MDD -	
PHQ-9 +	40 True Positive	190 False Positive	230 Screen Positive
PHQ-9 -	10 False Negative	760 True Negative	770 Screen Negative
	50 MDD Positive	950 MDD Negative	1000 Total Sample

PPV: $40/230 = 17.4\%$. For every 100 screen positives, only approximately 17 would be depressed

Excess diagnostic burden: $190/1000 = 19\%$. Diagnostic

1-Stage Screening Approach

10% Prevalence

80% Sensitivity 80% Specificity

	Gold Standard		
	MDD +	MDD -	
PHQ-9 +	80 True Positive	180 False Positive	260 Screen Positive
PHQ-9 -	20 False Negative	720 True Negative	740 Screen Negative
	100 MDD Positive	900 MDD Negative	1000 Total Sample

PPV: $80/260 = 30.8\%$. For every 100 screen positives, only approximately 31 would be depressed

Excess diagnostic burden: $180/1000 = 18\%$ Diagnostic

1-Stage Screening Approach

20% Prevalence

80% Sensitivity 80% Specificity

	Gold Standard		
	MDD +	MDD -	
PHQ-9 +	160 True Positive	160 False Positive	320 Screen Positive
PHQ-9 -	40 False Negative	640 True Negative	680 Screen Negative
	200 MDD Positive	800 MDD Negative	1000 Total Sample

PPV: $160/320 = 50\%$. For every 100 screen positives, only approximately 50 would be depressed

Excess diagnostic burden: $160/1000 = 16\%$ Diagnostic

Performance of a One-Stage Screening Approach

Sample size: 1000

Sensitivity: 80%

Specificity: 80%

Prevalence		Excess	
		Diagnostic Burden	
	# Cases	PPV	Burden
5%	50	17.4	19.0
10%	100	30.8	18.0
20%	200	50.0	16.0

2-Stage Screening Approach

5% Prevalence

Gold Standard

	MDD +	MDD -	Total
Stage I	95% Sensitivity, 60% Specificity		
Screen +	48 True Positive	380 False Positive	428 Screen Positive
Screen -	2 False Negative	570 True Negative	572 Screen Negative
	50 MDD Positive	950 MDD Negative	1000 Total Sample
Stage II	80% Sensitivity, 80% Specificity		
Screen +	38 True Positive	76 False Positive	114 Screen Positive
Screen -	10 False Negative	304 True Negative	314 Screen Negative
	48	380	428

PPV: $48/428 = 11.2\%$. For every 100 screen positives, approximately 11 would be depressed

PPV: $38/114 = 33.3\%$. For every 100 screen positives, approximately 33 would be depressed
Excess diagnostic burden: $76/1000 = 7.6\%$.
Diagnostic assessment

2-Stage Screening Approach

10% Prevalence

Gold Standard

	MDD +	MDD -	Total
Stage I	95% Sensitivity, 60% Specificity		
Screen +	95 True Positive	360 False Positive	455 Screen Positive
Screen -	5 False Negative	540 True Negative	545 Screen Negative
	100 MDD Positive	900 MDD Negative	1000 Total Sample

PPV: $95/455 = 20.9\%$. For every 100 screen positives, approximately 21 would be depressed

Stage II	80% Sensitivity, 80% Specificity		
Screen +	76 True Positive	72 False Positive	148 Screen Positive
Screen -	19 False Negative	288 True Negative	307 Screen Negative
	95	360	455

PPV: $76/148 = 51.4\%$. For every 100 screen positives, approximately 51 would be depressed

Excess diagnostic burden: $72/1000 = 7.2\%$.

Diagnostic assessment

2-Stage Screening Approach

20% Prevalence

Gold Standard

	MDD +	MDD -	Total
Stage I	95% Sensitivity, 60% Specificity		
Screen +	190 True Positive	320 False Positive	510 Screen Positive
Screen -	10 False Negative	480 True Negative	490 Screen Negative
	200 MDD Positive	800 MDD Negative	1000 Total Sample

PPV: $190/510 = 37.3\%$.
For every 100 screen positives, approximately 37 would be depressed

Stage II	80% Sensitivity, 80% Specificity		
Screen +	152 True Positive	64 False Positive	216 Screen Positive
Screen -	10 False Negative	304 True Negative	314 Screen Negative
	48	380	428

PPV: $152/216 = 70.4\%$.
For every 100 screen positives, approximately 70 would be depressed
Excess diagnostic burden: $64/1000 = 6.4\%$.
Diagnostic assessment

Performance of a Two-Stage Screening Approach

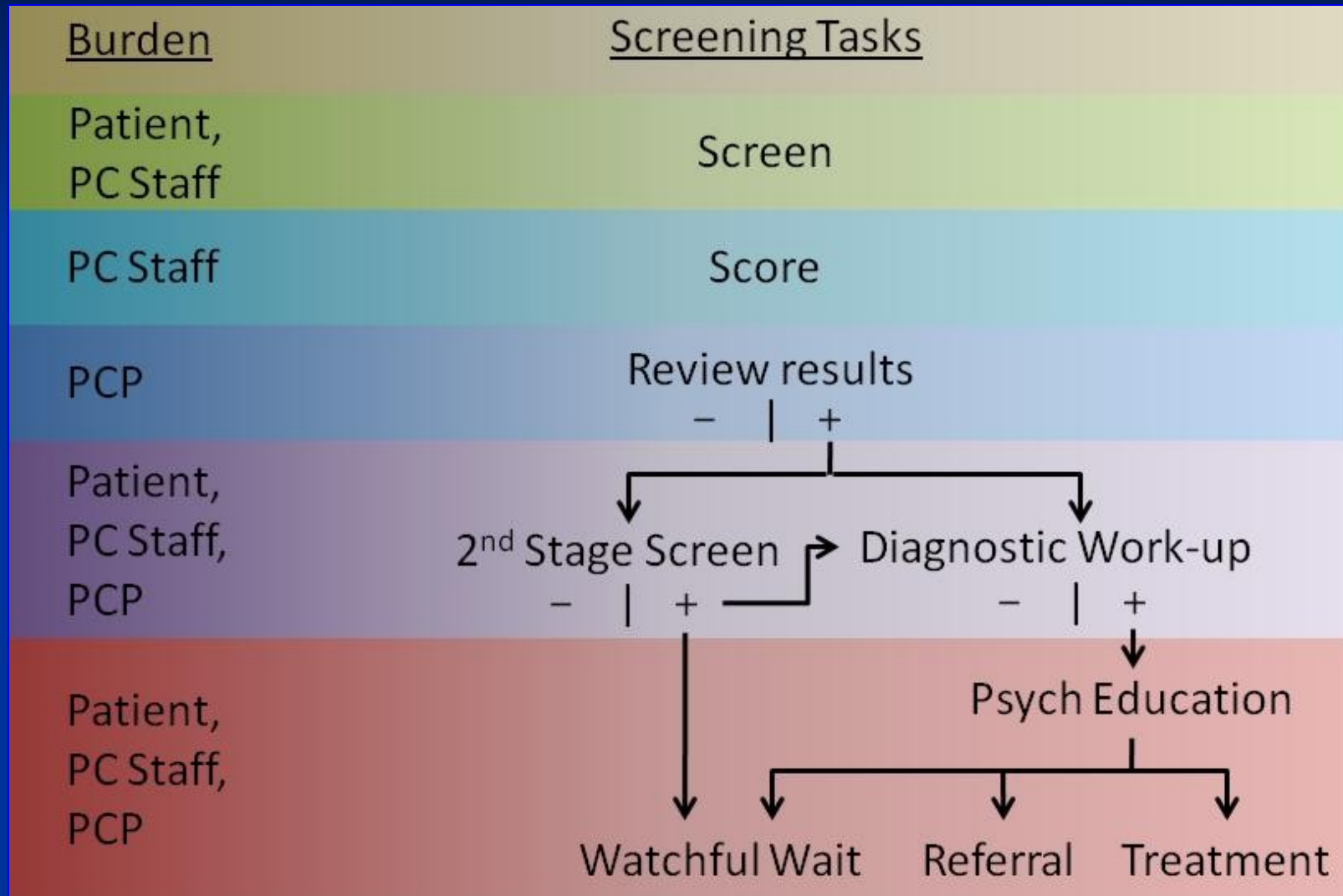
Sample size: 1000

Sensitivity: 95% (Stage I); 80% (Stage II)

Specificity: 60% (Stage I); 80% (Stage II)

Excess			
Diagnostic Burden			
Prevalence	# Cases	PIV	Burden
5%	50	33.3	7.6
		15.9	11.4
		51.4	7.2

Screening Burden by Task



Single Stage Screening Approach

(Sensitivity: 80%, Specificity 80%)

Time Burden (min)	MDD Prevalence		
	5%	10%	20%
Screening (Patient)	2,000 (1000*2)	2,000 (1000*2)	2,000 (1000*2)
Scoring (Staff)	2,000 (1000*2)	2,000 (1000*2)	2,000 (1000*2)
Screening Yield	23.0% (230/1000)	26.0% (260/1000)	32.0% (320/1000)
Diagnostic Interview			
Patient	4,600 (230*20)	5,200 (260*20)	6,400 (320*20)
Provider	4,600 (230*20)	5,200 (260*20)	6,400 (320*20)
PPV	17.4% (40/230)	30.8% (80/260)	50% (160/320)

Two Stage Screening Approach:

Stage I (Sensitivity: 95%, Specificity 60%)

Stage II (Sensitivity: 80%, Specificity 80%)

		MDD Prevalence		
Stage	Time Burden (min)	5%	10%	20%
	Screening			
I	(Patient)	1000 (1000*1)	1000 (1000*1)	1000 (1000*1)
	Scoring (Staff)	1000 (1000*1)	1000 (1000*1)	1000 (1000*1)
	Screening	42.8%	45.5%	51.0%
	Yield	(428/1000)	(455/1000)	(510/1000)
II	Screening			
	(Patient)	856 (428*2)	910 (455*2)	1,020 (510*2)
	Scoring (Staff)	856 (428*2)	910 (455*2)	1,020 (510*2)
	Screening	26.6%	32.5%	42.4% (216 /
	Yield	(114/428)	(148/455)	510)
Diagnostic Interview				
		2,280		
	Patient	(114*20)	2,960 (148*20)	4,320 (216*20)
		2,280		

Comparison of Patient, Staff, and Provider Time (min) for One and Two Stage Screeners

MDD Prevalence

	5%		10%		20%	
	One Stage	Two Stage	One Stage	Two Stage	One Stage	Two Stage
Patient	6,600	4,136	7,200	4,870	8,400	6,340
Staff	2,000	1,856	2,000	1,910	2,000	2,020
Provider	4,600	2,280	5,200	2,960	6,400	4,320

What Developments Are on the Horizon?

- Increasing acceptance of screening (USPSTF)
- Reduce stigma
- Improve screening benefit/cost ratio
 - Improve tx outcomes
 - Reduce screening time
 - Reduce clinician and staff time by modifying screening modality
 - Patient self-administered computerized screens
 - Automated EMR screening reminders
 - 2-stage screening process
 - Dedicated nurses for screening & dx (also case-management)
 - Screening for multiple psychiatric disorders
 - Screening less often (e.g., 2-5 years instead of every year)

Conclusions

- Improvements in depression screening have paralleled improvements in depression treatment and reduced stigma
- PCPs have embraced responsibility for screening, recognizing, and treating depression
- For additional efficiencies, we will need
 - Advances in technology (e.g., computerized screening and scoring)
 - Improved outcomes